Princeton Infrared Technologies

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1280SCICAM

1280x1024x12 µm InGaAs Science Camera

Model # 1280SC-12-A1-InGaAs-1.7

The SciCam SWIR camera allows for the longest integration times for ultra low light level sensitivity at megapixel resolution in the SWIR!

This lattice matched InGaAs camera allows for high resolution SWIR imaging at 1280x1024 with high frame rates >93 frames per second (fps) at full frame size. This small pitch array, 12 µm, combined with the high quantum efficiency of lattice matched InGaAs arrays enables impressive imaging in the SWIR and visible band. The camera has the capability of four setpoints, 20°C (no cooling), 0°C (fan cooling), -40°C, or -60°C (water cooled) using a 4 stage TEC integrated in a vacuum-sealed package.

This advanced digital focal plane array (PIRT1280A1-12) offers 14-bit digital output with a low read noise of <90e- with no image lag. This combined with low dark current InGaAs and 4 stage TEC will enable high sensitivity imaging with very long integration times >2 minutes. The camera utilizes a medium based Camera Link™ to allow for fast, full frame rate imaging >93 frames per second at 1280x1024 at 14 bits. The InGaAs detector provides high quantum efficiency response in the shortwave infrared as well as in the visible wavelength range, from 0.4 µm to 1.7 µm. This powerful camera system integrates to most frame grabber cards and delivers excellent performance in high-speed machine vision applications as well as microscopy where the small pitch long integration time is advantageous.

Features

- **1280x1024 resolution**
- **Small 12 µm pitch**
- **Multiple Temperature Setpoints: 20, 0, -40, and -60°C**
- **Snapshot exposure**
- **High frame rate**
- **>93 fps at 1280x1024**
- **Response from 0.4-1.7 µm**
- **QE ≥75% from 1.0-1.6 µm**
- **14-bit A/D on chip**
- **Read noise <90e-**
- **Integration times from 50 µs to >2 minutes**
- **>1000:1 dynamic range**
- **F- and C-mount lenses available**

We have the lowest dark current. Independently verified by the SPIE Journal of Astronomical Telescopes, Instruments and Systems.

Read the article here:

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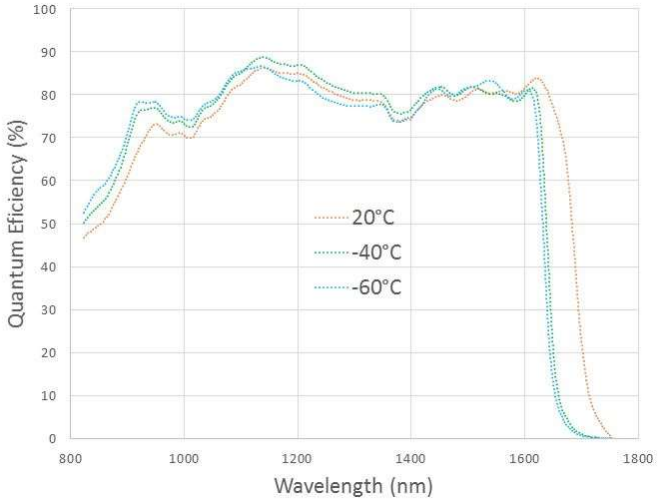
Quantum Efficiency Curve



Parameter	Unit	Min	Typical	Max	Comments
Full resolution	pixels		1280x1024		
Pixel pitch	µm		12		
Full well	ke-	64	75		at -60°C
Frame rate					
1280x1024	frames/second		93		
512x512			385		
Data output	bits			14	*medium Camera Link™
Quantum efficiency	electron/photon		0.75		using 1.5 µm light see full QE curve above
Fill factor	%			100	
Spectral Response Range	µm	0.40		1.68	at 20°C
Integration time	s				max integration time for 2/3 the
At 20°C		$50x10^{-6}$	0.270		full well at max dark signal at
At -60°C		$50x10^{-6}$	120		the given temperature
Dark signal rate	ke-/s		28	125	at 20°C
			0.30	0.50	at -60°C
Read noise	e- (RMS)		75	90	at -60°C
D*	cm-√Hz/W		$2.9x10^{13}$		at -60°C, with 1.5 µm light at 128ms integration time
Inoperable pixels	%			0.5	at 20°C
Non-linearity	%			1	across 98% of dynamic range
Size	cm		26.7x14x16.5		
Weight	g		4000		
Power	W			<30	at -50°C with water cooling

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*Princeton Infrared Technologies recommends use of Camera Link™ cables shorter than 5m for reliable camera operation.